THAT WHICH IS CLAIMED IS:

Sub B1

1. A transformed yeast cell containing a first heterologous DNA sequence which codes for a mammalian G protein coupled receptor and a second heterologous DNA sequence which codes for a mammalian G protein α subunit (mammalian G_α), wherein said first and second heterologous DNA sequences are capable of expression in said cell, and wherein said cell is incapable of expressing an endogenous G protein α-subunit (yeast G_α).

2. A transformed yeast cell according to claim 1, wherein said first heterologous DNA sequence is carried by a plasmid.

3. A transformed yeast cell according to claim 1, wherein said second heterologous DNA sequence is carried by a plasmid.

Sub B2

4. A transformed yeast cell according to claim 1, wherein said mammalian G protein α subunit is selected from the group consisting of G_s α subunits, G_i α subunits, G_o α subunits, G_z α subunits, and transducin α subunits.

5. A transformed yeast cell according to claim 1 which expresses a complex of the G protein β subunit and the G protein γ subunit ($G_{\beta\gamma}$).

6. A transformed yeast cell according to claim 5 which expresses endogenous $G_{\beta\gamma}$.

Sub B3

7. A transformed yeast cell according to claim 1, wherein said first heterologous DNA sequence codes for a mammalian G protein-coupled receptor selected from the group consisting of dopamine receptors, muscarinic cholinergic receptors, α-adrenergic receptors, β-adrenergic receptors, opiate receptors, cannabinoid receptors, and serotonin receptors.

8. A transformed yeast cell according to claim 1 further comprising a third heterologous DNA sequence, wherein said third heterologous DNA sequence comprises a pheromone-responsive promotor and an indicator gene positioned downstream from said pheromone-responsive promoter and operatively associated therewith.

9. A transformed yeast cell according to claim 8, wherein said pheromone responsive promoter is selected from the group consisting of the BAR1 gene promoter and the FUS1 gene promoter, and wherein said indicator gene is selected from the group consisting of the HIS3 gene and the LacZ gene.

10. A method of testing a compound for the ability to affect the rate of dissociation of G_α from $G_{\beta\gamma}$ in a cell, comprising:

providing a transformed yeast cell containing a first heterologous DNA sequence which codes for a mammalian G protein coupled receptor and a second heterologous DNA sequence which codes for a mammalian G_α, wherein said first and second heterologous DNA sequences are capable of expression in said cell, wherein said cell is incapable of expressing endogenous G_α, and wherein said cell expresses $G_{\beta\gamma}$;

contacting said compound to said cell; and

detecting the rate of dissociation of G_α from $G_{\beta\gamma}$ in said cell.

11. A method according to claim 10, wherein said yeast cells are provided in an aqueous solution and said contacting step is carried out by adding said compound to said aqueous solution.

12. A method according to claim 10, wherein said mammalian G protein α subunit is selected from the group consisting of G_s α subunits, G_i α subunits, G_o α subunits, G_z α subunits, and transducin α subunits.

13. A method according to claim 10, wherein said yeast cell expresses endogenous $G_{\beta\gamma}$.

14. A method according to claim 10, wherein said first heterologous DNA sequence codes for a mammalian G protein-coupled receptor selected from the group consisting of dopamine receptors, muscarinic cholinergic receptors, α-adrenergic receptors, β-adrenergic receptors, opiate receptors, cannabinoid receptors, and serotonin receptors.

15. A method according to claim 10, said yeast cell further comprising a third heterologous DNA sequence, wherein said third heterologous DNA sequence comprises a pheromone-responsive promotor and an indicator gene positioned downstream from said pheromone-responsive promoter and operatively associated therewith;

and wherein said detecting step is carried out by monitoring the expression of said indicator gene in said cell.

16. A DNA expression vector capable of expressing a transmembrane protein into the cell membrane of yeast cells, comprising:

a first segment comprising at least a fragment of the extreme amino-terminal coding sequence of a yeast G protein coupled receptor; and

a second segment downstream from said first segment and in correct reading frame therewith, said second segment comprising a DNA sequence encoding a heterologous G protein coupled receptor.

17. A DNA expression vector according to claim 16, wherein a fragment of the extreme amino-terminal coding sequence of said heterologous G protein coupled receptor is absent.

18. A DNA expression vector according to claim 16, wherein said first and second segments are operatively associated with a promoter operative in a yeast cell.

19. A DNA expression vector according to claim 18, wherein said promoter is the <u>GAL1</u> promoter.

20. A DNA expression vector according to claim 16, wherein said first segment comprises at least a fragment of the extreme amino-terminal coding sequence of a yeast phereomone receptor.

21. A DNA expression vector according to claim 16, wherein said first segment comprises at least a fragment of the extreme amino-terminal coding sequence of a yeast phereomone receptor selected from the group consisting of the <u>STE2</u> gene and the <u>STE3</u> gene.

22. A DNA expression vector according to claim 16, further comprising at least a fragment of the 5'-untranslated region of a yeast G protein coupled receptor gene positioned upstream from said first segment and operatively associated therewith.

23. A DNA expression vector according to claim 16, further comprising at least a fragment of the 5'-untranslated region of a yeast phereomone receptor gene positioned upstream from said first segment and operatively associated therewith.

24. A DNA expression vector according to claim 23, wherein said yeast pheromone receptor gene is selected from the group consisting of the STE2 gene and the STE3 gene.

25. A DNA expression vector according to claim 16, said vector comprising a plasmid.

26. A DNA expression vector according to claim 16, said second segment comprising a DNA sequence encoding a mammalian G protein coupled receptor.

27. A DNA expression vector according to claim 16, said second segment comprising a DNA sequence encoding a mammalian G protein-coupled receptor selected from the group consisting of dopamine receptors, muscarinic cholinergic receptors, α-adrenergic receptors, β-adrenergic receptors, opiate receptors, cannabinoid receptors, and serotonin receptors.

28. A yeast cell carrying a DNA expression vector according to claim 16.

Add C17